

HW 16

Problem 1 (11.6) Suppose Guy approaches you (unless you are Guy, in which case suppose you are talking to yourself) with the following argument: “I looked at the measurements for both locations and I calculated the corresponding averages. Why would I need to test whether or not the means are equal when I can already tell this by comparing the averages?”

Channeling your inner statistician, how would you respond to Guy’s question?

Problem 2 (11.18) Two independent samples are to be compared to see if there is a difference in the population means. (You may assume that the observations in the two samples are normally distributed with the same variance.) If a total of m subjects are available for the experiment, how should this total be allocated between the two samples in order to provide the shortest confidence interval for $\mu_X - \mu_Y$?

Problem 3 (11.18) Two independent samples are to be compared to see if there is a difference in the population means. (You may assume that the observations in the two samples are normally distributed with the same variance.) If a total of m subjects are available for the experiment, how should this total be allocated between the two samples in order to make the test of $H_0 : \mu_X = \mu_Y$ as powerful as possible?